WHAT IS CLAIMED IS:

1. A system for managing an e-service based on both the knowledge about the business process model of said e-service and the knowledge about the business infrastructure that supports said e-service, said system comprising:

5   a dispatcher for routing performance status information relevant to the business infrastructure;

at least one local service management system for ensuring the service quality of different local infrastructure of said business infrastructure, generating and routing performance status information relevant to said local infrastructure to said

10   dispatcher; and

a global e-service management system for ensuring the service quality of said e-service by managing the business infrastructure based on the business process model of said e-service and the performance status information routed through said dispatcher to a global data repository .

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2. The system according to claim 1, wherein said global data repository   includes a database implemented on a computer-accessible medium.

3. The system according to claim 2, wherein said computer-accessible medium

20   includes hard disk.

4. The system according to claim 1, wherein each said local infrastructure includes at least one of services, components, and resources.

5. The system according to claim 1, wherein said global e-service management

25   further comprises:

a global ecology controller for estimating overall performance of said business infrastructure; and

a global e-service manager for describing and reporting said performance status information.

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6.   The system according to claim 5, wherein said global e-service manager further comprises:

a console for displaying said performance status information; and

a report mechanism for organizing performance status information into a

10   graphical representation and then displaying said graphical representation of the performance status information on said console.

7.   The system according to claim 5, further comprising:

a design studio for designing new functionality of said e-service

15   management;

an notification mechanism for notifying relevant parties regarding infrastructure performance; and

an export for providing external application programming interfaces.

20   8.   The system according to claim 7, wherein said design studio further comprises:

a discovery mechanism for identifying running application on remote computer systems; and

an editor for manual updating and designing a behavior expert.

9. The system according to claim 1, wherein each of said local service management further comprises:

a local service manager for ensuring the service quality of a local infrastructure of said business infrastructure;

5   at least one data provider for providing observation data acquired from different components of said local infrastructure;

at least one behavior expert for detecting abnormal events related to said different components of said local infrastructure based on said observation data; and

a local ecology detector for detecting abnormal ecological event of the local

10   infrastructure based on said abnormal events, detected by said at least one behavior expert.

10. The system according to claim 9, wherein said local service manager comprises:

a general data server for organizing said observation data from said at least

15   one data provider into generic data objects; and

a blackboard server for hosting abnormal events that are detected, posted, and accessed by said at least one behavior expert for asynchronous communication among said at least one behavior expert.

20   11. The system according to claim 9, wherein said at least one data provider includes at least one of services, components, resources, and behavior experts.

12. The system according to claim 4 and claim 11, wherein said components include a web server, a database server, an application server, an iNet service, and a load balancer.

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13. The system according to claim 4 and claim 11, wherein said resources include an operating system, an application, a system call driver, an external transaction, and a network.

5   14. The system according to claim 9, further comprising an adapter for tuning said at least one behavior expert according to the feedback from normal service operations performed on said business infrastructure.

15. The system according to claim 14, wherein said adapter includes:

10   a storage for storing at least one objective function describing desired service behavior of said local infrastructure;

at least one sensor connected to said at least one behavior expert associated with said local infrastructure to record the states of said at least one behavior expert;

15   an evaluator to evaluate the discrepancy between said at least one objective function and said states recorded by said at least one sensor; and

an adaptive tuner for adaptively updating said states based on said discrepancy.

20   16. A method for managing an e-service based on both the knowledge about the business process model of said e-service and the knowledge about the business infrastructure that supports said e-service, said method comprising:

generating performance status information related to different local infrastructure of said business infrastructure by at least one local service management

system that ensures service quality of said different local infrastructure based on the business process model and the knowledge about the local infrastructure;

routing said performance status information to a dispatcher;

sending said performance status information by said dispatcher to a global

5   data repository; and

managing said business infrastructure by a global e-service management system that ensures service quality of said e-service based on said performance status information and the business process model.

10   17. The method according to claim 16, wherein said global data repository includes a database implemented on a computer-accessible medium.

18. The method according to claim 17, wherein said computer-accessible medium includes hard disk.

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19.   The method according to claim 16, wherein each said local infrastructure includes at least one of services, components, and resources.

20. The method according to claim 16, wherein said generating by at least one

20   local service management comprises:

accessing observation data, by at least one behavior expert, from a general data server;

detecting abnormal events by said at least one behavior expert, each of said at least one behavior expert ensuring the quality of a different logical part of a local

infrastructure based on said observation data, the business process model for said e-service, and the knowledge about the logical part;

estimating the performance of said local infrastructure, by a local ecology detector, by detecting abnormal ecological events based on said abnormal events and said

5   business process model to generate said performance status information.

21. The method according to claim 20, further comprising:

receiving said observation data, by said general data server, from at least one data provider; and

10   posting said abnormal events, by said at least one behavior expert, on a blackboard server.

22. The method according to claim 21, further comprising:

acquiring the states of said at least one behavior expert via at least one

15   sensors;

retrieving at least one objective function describing desired service behavior of said local infrastructure;

analyzing the discrepancy between said states and said at least one objective function; and

20   adapting by updating said states of said at least one behavior expert based on said discrepancy.

23. The method according to claim 21, wherein said at least one data provider includes a service, a component, a resource, and a behavior expert.

24. The method according to claim 20, wherein said estimating by a local ecology detector detects said abnormal ecological events using at least one of statistics, frequency, and fuzzy logic method.

5   25. The method according to claim 16, wherein said managing comprises:

detecting overall performance of said business infrastructure, by a global ecology controller, based on said performance status information routed through said dispatcher and stored in the global data repository; and

reporting said performance status information, by a global e-service
10   manager.

26. The method according to claim 25, wherein said reporting further comprises:

organizing performance status information into a graphical representation; and

15   displaying said graphical representation on a display device.

27. The method according to claim 25, further comprising:

implementing new functionality for said e-service management;

notifying said performance status information; and

20   providing external application programming interfaces.

28. The method according to claim 27, wherein said implementing new functionality comprises:

a discovery mechanism for identifying applications running on remote
25   computer systems; and

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updating the rules of a behavior expert; and

designing a new behavior expert.

29.   The method as in any one of claims 16 to claim 28, wherein each of said behavior expert:

monitoring at least one part of said business infrastructure;

learning the impact of the behavior of said at least one part on said e-service; and

managing said at least one part based on the knowledge about said at least one part and the knowledge learned through said learning.

30.   A computer-readable medium, encoded with a program for managing an e-service based on both the knowledge about the business process model of said e-service and the knowledge about the business infrastructure that supports said e-service, said program comprising:

generating performance status information related to different local infrastructure of said business infrastructure by at least one local service management that ensures service quality of said different local infrastructure based on the business process model and the knowledge about the local infrastructure;

routing said performance status information to a dispatcher;

sending said performance status information by said dispatcher to a global data repository; and

managing said business infrastructure by a global e-service management that ensures service quality of said e-service based on said performance status information and the business process model.

31. The computer-readable medium according to claim 30, wherein each said local infrastructure includes at least one of services, components, and resources.

5   32. The computer-readable medium according to claim 30, wherein said generating by at least one local service management comprises:

accessing observation data, by at least one behavior expert, from a general data server;

detecting abnormal events by said at least one behavior expert, each of said 10 at least one behavior expert ensuring the quality of a different logical part of a local infrastructure based on said observation data, the business process model for said e-service, and the knowledge about the logical part;

estimating the performance of said local infrastructure, by a local ecology detector, by detecting abnormal ecological events based on said abnormal events and said 15 business process model to generate said performance status information.

33.   The computer-readable medium according to claim 32, said program further comprising:

receiving said observation data, by said general data server, from at least 20 one data provider; and

posting said abnormal events, by said at least one behavior expert, on a blackboard server.

34.   The computer-readable medium according to claim 33, said program 25 further comprising:

acquiring operational information of said local infrastructure via at least one sensors;

retrieving at least one objective function describing desired service behavior of said local infrastructure; and

5   adapting an exception table describing undesired service behavior of said local infrastructure based on the operational information, acquired by said acquiring, and said at least one objective function.

35. The computer-readable medium according to claim 30, wherein said managing
10   comprises:

detecting overall performance of said business infrastructure, by a global ecology controller, based on said performance status information routed through said dispatcher and stored in the global data repository ; and

reporting said performance status information, by a global e-service
15   manager.

36.   The computer-readable medium according to claim 35, wherein said reporting further comprises:

organizing performance status information into a graphical representation;
20   and

displaying said graphical representation on a display device.

37.   The computer-readable medium according to claim 35, said program further comprising:

25   implementing new functionality for said e-service management;

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notifying said performance status information; and

providing external application programming interfaces.

38. The computer-readable medium according to claim 37, wherein said implementing new functionality comprises:

a discovery mechanism for identifying applications running on remote computer systems;

updating the rules of a behavior expert; and

designing a new behavior expert.

39. The computer-readable medium as in any one of claim 30 to claim 38, wherein each of said behavior expert:

monitoring at least one part of said business infrastructure;

learning the impact of the behavior of said at least one part on said e-service; and

managing said at least one part based on the knowledge about said at least one part and the knowledge learned through said learning.